

Appendix 2

Raton Basin Bibliography

- Abbott, P. O., Geldon, A. L., Cain, D., Hall, A. P., and Edelmann, P., 1983, Hydrology of area 61, northern Great Plains and Rocky Mountain coal provinces, Colorado and New Mexico: United States Geological Survey, Open File Report 83-132, 99 p.
- Ambrose, W. A., Tyler, R., Scott, A R., and Kaiser, W., 1992, Coalbed methane potential of the greater Green River, Piceance, Powder River, and Raton Basins: American Association of Petroleum Geologists Bulletin, v. 76, no. 8, p. 1255.
- Anonymous, 1993, Quarterly Review of Methane from Coal Seams Technology, Raton Basin, Colorado and New Mexico: Methane from Coal Seams Technology, (August issue), p. 33-36.
- Anonymous, 1999, New Mexico Raton Basin coalbed methane development: Oil and Gas Journal, v. 97, no. 17, p. 50.
- Baltz, E. H., 1965, Stratigraphy and history of Raton Basin and notes on San Luis Basin, Colorado-New Mexico: Bulletin of the American Association of Petroleum Geologists, v. 49, no. 11, p. 2041-2075.
- Baltz, E. H., and Myers, D. A., 1999, Stratigraphic framework of upper Paleozoic rocks, southeastern Sangre de Cristo Mountains, New Mexico, with a section on speculations and implications for regional interpretation of Ancestral Rocky Mountains paleotectonics: New Mexico Bureau of Geology and Mineral Resources, Memoir 48, 269 p.
- Bauer, P. W., Lucas, S. G., Mawer, C. K., and McIntosh, W. C., 1990, Tectonic Development of the Southern Sangre de Cristo Mountains, New Mexico: Socorro, New Mexico Geological Society, 450 p.
- Billingsley, L. T., 1977a, Stratigraphy and clay diagenesis of the Trinidad Sandstone and Vermejo Formation, Walsenberg area, Colorado: American Association of Geologists Bulletin, v. 61, no. 8, p. 1372.
- Billingsley, L. T., 1977b, Stratigraphy of the Trinidad Sandstone and associated formations, Walsenberg area, Colorado, *in* Veal, H. K., ed., Exploration Frontiers of the Central and Southern Rockies: Rocky Mountain Association of Geologists, Field Trip and Conference Guidebook, p. 235-246.
- Bland, D. M., 1992, New Mexico's Coalbed Methane Industry: New Mexico

- Energy, Minerals and Natural Resources Department, Mining and Minerals Division, Mine Registration and Geological Services, 6 p.
- Carlton, D., and Cornelius, C., 2000, Macro geologic controls on coalbed methane resource development; Raton Basin, S.E. Colorado, USA: AAPG Bulletin, v. 84, no. 9, p. 1409.
- Carter, D. A., 1956, Coal deposits of the Raton Basin, *in* McGinnis, C. J., ed., Geology of the Raton Basin, Colorado: Rocky Mountain Association of Geologists Guidebook, p. 89-92.
- Cather, S. M., 2004, Laramide Orogeny in central and northern New Mexico and southern Colorado, *in* Mack, G., Giles, K., and Austin, G., eds., The Geology of New Mexico, Volume 1: New Mexico Geological Society, Special Publication, in press, preprint available at:
http://geoinfo.nmt.edu/staff/cather/papers/Cather_Laramide_2002.pdf
- Cheney, R. S., 1982, Geophysical Investigation of the Raton Basin [Master's thesis]: Texas Tech University, 75 p.
- Close, J. C., 1988, Interpretation of vitrinite reflectance data for the Raton Basin, Southern Colorado -northern New Mexico: Geological Society of America, Abstracts with Programs, v. 20, no. 7, p. 91.
- Close, J. C., 1988, Coalbed Methane Potential of the Raton Basin, Colorado and New Mexico [Doctoral thesis]: Southern Illinois University, 432 p.
- Close, J. C., 1993, Processes and timing of thermal maturation in the Raton Basin, Colorado and New Mexico, *in* 1993 International Coalbed Methane Symposium: Society of Petroleum Engineers, Birmingham, AL, p. 383-393.
- Close, J. C., and Dutcher, R. R., 1990, Prediction of permeability trends and origins in coal-bed methane reservoir of the Raton basin, New Mexico and Colorado, *in* Bauer, P. W., Lucas, S. G., Mawer, C. K., and McIntosh, W. C., eds., Tectonic Development of the Southern Sangre de Cristo Mountains, New Mexico: New Mexico Geological Society 41st Annual Field Conference Guidebook, p.387-395.
- Close, J. C., and Dutcher, R. R., 1991, Update on coalbed methane potential, Raton Basin, Colorado and New Mexico: Society of Petroleum Engineers, SPE20667, 16 p.
- Close, J. C., and Dutcher, R. R., 2000, Geomorphology of drainage patterns: clues to coal gas natural fracture timing, orientation and location, Raton Basin, Colorado-New Mexico, *in* Schwochow, S. D. and Nuccio, V. F.,

- eds., Coalbed Methane of North America II: Rocky Mountain Association of Geologists, p. 25-48.
- De Voto, R. H., 1980, Pennsylvanian stratigraphy and history of Colorado, *in* Kent, H. C., and Porter, K. W., eds., Colorado Geology: Rocky Mountain Association of Geologists, p. 71-101.
- Dolly, E. D., and Meissner, F. F., 1977, Geology and gas exploration potential, upper Cretaceous and lower Tertiary strata, northern Raton Basin, Colorado, *in* Veal, H. K., ed., Exploration Frontiers of the Central and Southern Rockies: Rocky Mountain Association of Geologists, Field Trip and Conference Guidebook, p. 247-270.
- Ewing, R. C., and Kues, B. S. 1976, Guidebook of Vermejo Park Northeastern New Mexico: Socorro, NM, New Mexico Geological Society, 303 p.
- Fleming, R. F., 1987, Paleoenvironmental significance of fossil chlorococcalean algae from the Raton Formation, Colorado and New Mexico: Geological Society of America, Abstracts with Programs, v. 19, no. 5, p. 275.
- Flores, R. M., 1987, Sedimentology of Upper Cretaceous and Tertiary siliciclastics and coals in the Raton Basin, New Mexico and Colorado; *in* Lucas, S. G., and Hunt, A. P., eds., Northeastern New Mexico: New Mexico Geological Society Guidebook 38, p. 255-264.
- Flores, R. M., and Bader, L. R., 1999, A summary of Tertiary coal resources of the Raton Basin, Colorado and New Mexico; *in* 1999 Resource assessment of selected Tertiary coal beds and zones in the northern Rocky Mountains and Great Plains region: U. S. Geological Survey, Professional Paper 1625-A, Chapter SR.
- Flores, R. M., and Pillmore, C. L., 1987, Tectonic control on alluvial paleoarchitecture of the Cretaceous and Tertiary Raton Basin, Colorado and New Mexico, *in* Ethridge, F. G., Flores, R. M., and Harvey, M. D., Recent Developments in Fluvial Sedimentology: Society of Economic Paleontologists and Mineralogists, Special Publication 39, p. 311-320.
- Flores, R. M., Roberts, S. B., and Perry, W. J., Jr., 1991, Evolution of Paleocene depositional systems and coal basins in a tectonic continuum, Rocky Mountain region: Geological Society of America, Abstracts with Programs, Geological Society of America, v. 23, no. 4, p. 22.
- Flores, R. M., and Tur, S. R., 1982, Characteristics of Deltaic Deposits in the Cretaceous Pierre Shale, Trinidad Sandstone, and Vermejo Formation, Raton Basin, Colorado: The Mountain Geologist, v. 19, no. 2, p. 25-40.

- Foster, R. W., 1966, Oil and gas exploration in Colfax County, *in* Northrup, S. A. and Read, C. B., eds., Taos-Raton-Spanish Peaks country: New Mexico Geological Society, Guidebook 17, p. 80-87.
- Geldon, A. L., and Abbott, P. O., 1985, Selected climatological and hydrologic data, Raton Basin, Huerfano and Las Animas Counties, Colorado, and Colfax County, New Mexico: United States Geological Survey, Open File Report 84-138, 268p.
- Geldon, A. L., 1989, Ground-Water Hydrology of the Central Raton Basin, Colorado and New Mexico: United States Geological Survey, Water Supply Paper 2288, 81 p.
- Grambling, J. A. and Dallmeyer, R. D., 1990, Proterozoic tectonic Evolution of the Cimarron Mountains, north-central New Mexico, *in* Bauer, P. W., Lucas, S. G., Mawer, C. K., and McIntosh, W. C., eds., Tectonic Development of the Southern Sangre de Cristo Mountains, New Mexico: New Mexico Geological Society 41st Annual Field Conference Guidebook, p. 161-170.
- Grant, P. R., and Foster, R. W., 1989, Future Petroleum Provinces in New Mexico-Discovering New Reserves (Atlas): New Mexico Bureau of Mines and Mineral Resources, 94 pages.
- Griffiths, S. A., 1981, Depositional Environments and Provenance of the Trinidad Sandstone and Related Formations, Vermejo Park, New Mexico. [Master's thesis]: Indiana University, 195 p.
- Griggs, R. L., 1948, Geology and Ground-Water Resources of the Eastern Part of Colfax County, New Mexico: New Mexico Bureau of Mines and Mineral Resources, Ground Water Report 1, 182 p.
- Haun, J. D., and Kent, H. C., 1965, Geologic history of the Rocky Mountain region: Bulletin of the American Association of Petroleum Geologists, v. 49, no. 11, p. 1781-1800.
- Hemborg, T. M., 1996, Raton Basin coalbed methane production picking up in Colorado: Oil and Gas Journal, (Nov 11, 1996 issue), p. 101-102.
- Hemborg, T. M., 1998, Spanish Peak Field, Las Animas County, Colorado: Geologic Setting and Early Development of a Coalbed Methane Reservoir in the Central Raton Basin: Colorado Geological Survey, Report 33, 34 p.
- Hemmerich, M., 2001, Cenozoic denudation of the Raton Basin and vicinity, northeastern New Mexico and southeastern Colorado, determined using apatite fission-track thermochronology and sonic log analysis:

- Unpublished M. S. independent study, New Mexico Institute of Mining and Technology, 121 p.
- Hemmerich, M. J., and Kelley, S. A., 1999, Exhumation of the Raton Basin, southeastern Colorado, determined from sonic long velocities: Geological Society of America, Abstracts with Programs, v. 31, no. 7, p. 245.
- Hoffman, G. K., 1996, Coal Resources of New Mexico: New Mexico Bureau of Mines and Mineral Resources, Resource Map 20, scale 1:1,000,000, 22 p.
- Hoffman, G. K., 1990, Coal geology and mining history in the Dawson area, southeastern Raton coal field, New Mexico, *in* Bauer, P. W., Lucas, S. G., Mawer, C. K., and McIntosh, W. C., eds., Tectonic Development of the Southern Sangre de Cristo Mountains, New Mexico: New Mexico Geological Society 41st Annual Field Conference Guidebook, p. 397-403.
- Hoffman, G. K., and Brister, B. S., 2003, New Mexico's Raton Basin coalbed methane play: New Mexico Geology, v. 25, no. 4, p. 95-110.
- Howard, J. D., 1969, Depositional controls of upper Cretaceous coal units: The Mountain Geologist, v. 6, no. 3, p. 143-190.
- Howard, W. B., 1982, The Hydrogeology of the Raton Basin, South-central Colorado [Master's thesis]: Indiana University, 95 p.
- Izett, G. A., and Pillmore, Charles L., 1985, Abrupt appearance of shocked quartz at the Cretaceous-Tertiary boundary, Raton Basin, Colorado and New Mexico: Geological Society of America, Abstracts with Programs, v. 17, no. 7, p. 617.
- Izett, G. A., 1987, The Cretaceous-Tertiary (K-T) boundary interval, Raton Basin, Colorado and New Mexico, and its content of shock-metamorphosed minerals; implications concerning the K-T boundary impact-extinction theory: United States Geological Survey, Open File Report 87-606, 125 p.
- Izett, G. A., 1990, The Cretaceous/Tertiary boundary interval, Raton Basin, Colorado and New Mexico, and its content of shock-metamorphosed minerals; Evidence relevant to the K/T boundary impact-extinction theory: The Geological Society of America, Special Paper 249, 100 p.
- Johnson, R. B., Dixon, G. H., and Wanek, A. A., 1966, Late Cretaceous and Tertiary stratigraphy of the Raton Basin of New Mexico and Colorado, *in* Northrup, S. A. and Read, C. B., eds., Taos-Raton-Spanish Peaks country: New Mexico Geological Society, Guidebook 17, p. 88-98.
- Johnson, R. B., and Roberts, A. E., 1960, Depositional environment of the coal-

- bearing formations of the Raton Mesa coal region, New Mexico and Colorado: *Oil and Gas Journal*, v. 53, no. 33, p. 84-88.
- Johnson, R. B. and Wood, G. H., Jr., 1956, Stratigraphy of Upper Cretaceous and Tertiary rocks of Raton Basin, Colorado and New Mexico: *Bulletin of the American Association of Petroleum Geologists*, v. 40, no. 4, p. 707-721.
- Johnson, R. C., and Finn, T. M., 2001 Potential for a basin-centered gas accumulation in the Raton Basin, Colorado and New Mexico; *in* Nuccio, V. F., and Dyman, T. S., eds., *Geologic studies of basin-centered gas systems*: U. S. Geological Survey, Bulletin 2184-B, p. 1-14.
- Jurich, D. and Adams, M. A., 1984, Geologic overview, coal, and coalbed methane resources of Raton Mesa region-Colorado and New Mexico, *in* Rightmire, C. T., Eddy, G. E., and Kirr, J. N., eds., *Coalbed Methane Resources of the United States*: American Association of Petroleum Geologists, *Studies in Geology* 17 p. 163-184.
- Jurie, C. A., and Gechard, L. C., 1969, Colorado Raton basin: Mineral resources and geologic section: *The Mountain Geologist*, v. 6, no. 3, p. 81-84.
- Kaiser Steel Corporation, 1976, Underground and surface operations at the York Canyon mine; *in* Ewing, R. C., and Kues, B. S. (eds.), *Vermejo Park, northeastern New Mexico*: New Mexico Geological Society, *Guidebook* 27, p. 253-255.
- Kauffman, E. G., Powell, J., and Hatten, D. E., 1969, Cenomanian-Turonian facies across the Raton basin: *The Mountain Geologist*, v. 6, no. 3, p. 93-118.
- Knowlton, F. H., 1917, Fossil floras of the Vermejo and Raton Formations of Colorado and New Mexico; *in* Lee, W. T., and Knowlton, F. H. (eds.), *Geology and paleontology of Raton Mesa and other regions in Colorado and New Mexico*: U. S. Geological Survey, *Professional Paper* 101, p. 9-221.
- Krutak, P. R., 1989, Depositional environments, diagenesis, hydrocarbons; Raton basin, Colorado: *American Association of Petroleum Geologists Bulletin*, v. 73, no. 9, p. 1163.
- Krutak, P. R., 1996, Hydrocarbon potential of Codell-Juana Lopez sandstones (Upper Cretaceous; middle-late Turonian), Denver, Canon City, Huerfano, and northern Raton basins, south-central Colorado: *Geological Society of America, Abstracts with Programs*, v. 28, no. 7, p. 65.

- Krutak, P. R., 1996, Depositional Environments of Codell-Juana Lopez Sandstones and Regional Structure and Stratigraphy of Cannon City and Huerfano Areas and Northern Raton Basin, South-Central Colorado: Colorado Geological Survey, Open File Report 96-4, 96 p.
- Kuellmer, F. J., Kendrick, D. T., and Baker, L., 1987, Trace element distribution in coals of the Menefee and Raton Formations of New Mexico: Geological Society of America, Abstracts with Programs, v. 19, no. 7, p. 735.
- Landis, E. R., 1959, Coal Resources of Colorado: U. S. Geological Survey, Open File Report 1072-C. 232 p.
- Lee, W. T., 1917, Geology of the Raton Mesa and other regions in Colorado and New Mexico, *in* Lee, W. T., and Knowlton, F. H., eds., Geology and Paleontology of Raton Mesa and other regions in Colorado and New Mexico: U. S. Geological Survey, Professional Paper 101, p. 9-221.
- Lee, W. T., 1924, Coal Resources of the Raton Coal Field, Colfax County: U. S. Geological Survey, Open File Report 752, 254 p.
- Lee, W. T. a. K. F. H., 1917, Geology and Paleontology of the Raton Mesa and other regions in Colorado and New Mexico: United States Geological Survey, Professional Paper 101, 450 pages.
- Lindsey, D. A., 1998, Laramide Structure of the central Sangre de Cristo Mountains and adjacent Raton Basin, Southern Colorado: The Mountain Geologist, v. 35, no. 2, p. 55-70.
- Lorenz, J. C., Cooper. S. P., and Keefe, R. G., 2003, Syn-sedimentary deformation in the central Raton Basin, Colorado and New Mexico- a potential control on sand body orientation: American Association of Petroleum Geologists, Annual Meeting, Program with Abstracts, May 11-14, 2003, Salt Lake City, Utah, p. A107.
- Lucas, S. G. and Hunt, A. P., 1987, Northeastern New Mexico: New Mexico Geological Society, Thirty-eighth Annual Field Conference Guidebook, 354 p.
- Mallory, W. W., 1972, Regional synthesis of the Pennsylvanian System, *in* Mallory, W. W., ed., Geologic Atlas of the Rocky Mountain Region: Rocky Mountain Association of Geologists, p. 111-127.
- Mallory, W. W., 1972b, Pennsylvanian arkose and the Ancestral Rocky Mountains, *in* Mallory, W. W, ed., Geologic Atlas of the Rocky Mountain Region: Rocky Mountain Association of Geologists, p. 131-132.

- Matuszczak, R. A., 1969, Trinidad Sandstone interpreted, evaluated, in Raton Basin, Colorado-New Mexico: *The Mountain Geologist*, v. 6, no. 3, p. 119-125.
- McCaslin, J. C., 1984, Deep Raton Basin hole promises to be significant: *Oil and Gas Journal*, v. 82, no. 48, p. 119-120.
- McGinnis, C. J., 1956, *Guide Book to the Geology of the Raton Basin, Colorado*: Denver, CO, Rocky Mountain Association of Geologists, p. 148.
- Miggins, D. P., 2002, Chronologic, geochemical, and isotopic framework of igneous rocks within the Raton Basin and adjacent Rio Grande rift, south-central Colorado and northern New Mexico: Unpublished M. S. thesis, University of Colorado, Boulder, 438 p.
- Miggins, D. P., Snee, L. W., Kunk, M. J., Pillmore, C. L. and Stern, C. R., 2000, The magmatic evolution of the Raton Basin using $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology: *Geological Society of America, Abstracts with Programs*, v. 32, no. 7, p. 159.
- Molina, C. L., Jobin, D. A., and O'Connor, J. T., 1991, *Coalfields of New Mexico: Geology and Resources*: United States Geological Survey, Bulletin 1972, 77 p.
- Northrop, S. A., Read, C. B., 1966, *New Mexico Geological Society Seventeenth Field Conference Guidebook of Taos-Raton-Spanish Peaks Country, New Mexico and Colorado*: Socorro, NM, New Mexico Geological Society, p. 128.
- Nuccio, V. F., Johnson, R. C., and Finn, T. M., 2000, Preliminary surface vitrinite reflectance map of the Raton Basin, Colorado and New Mexico, *in* Schwochow, S. D. and Nuccio, V. F., eds., *Coalbed Methane of North America II*: Rocky Mountain Association of Geologists, p. 49-52.
- Oldaker, P., Stevens, S. H., Lombardi, T. E., Kelso, B. S., and McBane, R. A., 1993, Geologic and Hydrologic Controls on Coalbed Methane Resources in the Raton Basin, *in* *Proceedings of the 1993 International Coalbed Methane Symposium*, Birmingham, AL, p. 69-77.
- Owen, D. E., 1969, The Dakota Sandstone of the eastern San Juan and Chama Basins and its possible correlation across the southern Rocky Mountains: *The Mountain Geologist*, v. 6, no. 3, p. 87-92.
- Payne, M. A., Wolberg, D. L., and Hunt, A., 1983, Magnetostratigraphy, Raton Basin, New Mexico: *Geological Society of America, Abstracts with Programs*, v. 15, no. 5, p. 308-309.

- Perry, P. L., 1987, An interpretation of the depositional setting for the Sugarite Coal Zone of the Raton Formation, located near the City of Raton, New Mexico [Master's thesis]: New Mexico Institute of Mining and Technology, 261 p.
- Pettit, R. F., Jr., 1966, Maxwell Land Grant, in Northrop, S. A., Read, C. B., eds., Guidebook of Taos-Raton-Spanish Peaks Country, New Mexico and Colorado: New Mexico Geological Society, Seventeenth Field Conference Guidebook, p. 66-68.
- Phelps, D. W., Gust, D. A., and Wooden, J. L., 1983, Petrogenesis of the mafic feldspathoidal lavas of the Raton-Clayton volcanic field, New Mexico: Contributions to Mineralogy and Petrology, v. 84, no. 2-3, p. 182-190.
- Pillmore, C. L., 1969, Geology and coal deposits of the Raton coal field, Colfax County, New Mexico: Mountain Geologist, v. 6, no. 3, p. 125-142.
- Pillmore, C. L., 1976, The York Canyon coal beds; *in* Ewing, R. C., and Kues, B. S., eds., Vermejo Park, northeastern New Mexico: New Mexico Geological Society, Guidebook 27, p. 249-251.
- Pillmore, C. L., 1991, Geology and Coal Resources of the Raton Coalfield, *in* Molina, C. L., Jobin, D. A., and O'Connor, J. T., and Kottlowski, F. E., eds., Coalfields of New Mexico-Geology and Resources, U. S. Geological Survey, Bulletin 1972, p. 45-68.
- Pillmore, C. L., and Flores, R. M., 1984, Field guide and discussions of coal deposits, depositional environments, and the Cretaceous-Tertiary boundary, southern Raton Basin, *in* Lintz, J., Jr., ed., Western Geological Excursions: Geological Society of America, Annual Meeting, v. 3, p. 1-51.
- Pillmore, C. L., and Flores, R. M., 1987, Stratigraphy and depositional environments of the Cretaceous-Tertiary boundary clay and associated rocks, Raton basin, New Mexico and Colorado, *in* Fassett, J. E., and Rigby, J. K., Jr., eds., The Cretaceous-Tertiary Boundary in San Juan and Raton Basins, Northern New Mexico and Southern Colorado: Geological Society of America, Special Paper 209, p. 111-130.
- Pillmore, C. L., and Hemborg, H. T., 2000, Field guide to the coalbed methane "fairway" in the Raton Basin of south-central Colorado, in Coalbed methane in the Rocky Mountains: Rocky Mountain Association of Geologists, June 20-21, 2000, Denver symposium guidebook, 51 p.
- Pillmore, C. L., Kauffman, E. G., 1990, Cretaceous strata of the Raton Basin, New Mexico and Colorado: AAPG Bulletin, v. 74, no. 8, p. 1341.

- Pillmore, C. L., Tschudy, R. H., Orth, C. J., and Gilmore, J. S., 1983, Stratigraphy of the Cretaceous-Tertiary boundary in the southern Raton Basin, New Mexico and Colorado: Abstracts with Programs-Geological Society of America, v. 15, no. 5, p. 308.
- Pillmore, C. L., Tschudy, R. H., Orth, C. J., Gilmore, J. S., and Knight, J. D., 1984, Geologic framework of nonmarine Cretaceous-Tertiary boundary sites, Raton Basin, New Mexico and Colorado: Science, v. 223, no. 4641, p. 1180-1182.
- Pollack, J. M., 1961, Significance of compositional and textural properties of South Canadian River channel sands New Mexico, Texas, and Oklahoma: The American Association of Petroleum Geologists Bulletin, v. 31, no. 1, p. 15-37.
- Pollastro, R. M. and Pillmore., C. L., 1987, Mineralogy and petrology of the Cretaceous-Tertiary boundary clay bed and adjacent clay-rich rocks, Raton Basin, New Mexico and Colorado: Journal of Sedimentary Petrology, v. 57, no. 3, p. 456-466.
- Rose, P. R., Everett, J. R. and Merin, I. S., 1984, Possible basin centered gas accumulation, Raton Basin, southern Colorado: Oil and Gas Journal, v. 82, no. 40, p. 190-197.
- Rose, P. R., Everett, J. R., and Merin, I. S., 1986, Potential basin-centered gas accumulation in Cretaceous Trinidad Sandstone, Raton Basin, Colorado, *in* Spencer, C. W. and Mast, R. F., eds., Geology of Tight Gas Reservoirs: The American Association of Petroleum Geologists, Studies in Geology 24 p. 111-128.
- Scafer, D. D., 1980, Thermal Alteration of Sandstones by Dikes and Sills in the Raton Basin, Spanish Peaks Area, South-central Colorado [Master's thesis]: University of Texas, 200 p.
- Scott, G. R., Wilcox, R. E., and Mehnert, H. H., 1990, Geology of Volcanic and Sub-volcanic Rocks of the Raton-Springer Area, Colfax and Union Counties, New Mexico: United States Geological Survey, Professional Paper 1507, 58 p.
- Shaw, G. L., 1956, Tectonic history of the Raton Basin with special reference to the Late Paleozoic: American Association of Petroleum Geologist, 1956 Geological Record (Rocky Mountain Section Conference Proceedings), p. 69-80.
- Shoemaker, E. M., Pillmore, C. L., and Tschudy, R. H., 1983, Characteristic

- magnetization of Cretaceous/Tertiary boundary claystone in the Raton Basin is reversed: Geological Society of America, Abstracts with Programs, v. 15, no. 5, p. 309.
- Stevens, S. H., Lombardi, T. E., Kelso, B. S., and Coates, J. 1992, A Geologic Assessment of Natural Gas from Coal Seams in the Raton and Vermejo Formations, Raton Basin: Gas Research Institute, Topical Report GRI-92/0345, 84 p.
- Stevens, S. H., Kelso, B. S., Lombardi, T. E., and Coates, J., 1993, Raton Basin; assessment of coalbed methane resources: Quarterly Review of Methane from Coal Seams Technology, v. 10, no. 3, p. 7-13.
- Stormer, J. C., Jr., 1972, Mineralogy and petrology of the Raton-Clayton volcanic field, northeastern New Mexico: Geological Society of America Bulletin, v. 83, no. 11, p. 3299-3321.
- Strum, S., Flores, R. M., and Cavaroc, V.V., 1983, Coal depositional settings in the Cretaceous and Tertiary Raton Formation, eastern Raton Basin, NM: Geological Society of America, Abstracts with Programs, v. 15, no. 2, p. 89.
- Tremain, C. M., 1980, The Coal Bed Methane Potential of the Raton Mesa Coal Region, Raton Basin, Colorado: Colorado Geological Survey, Open File Report 80-4, 48 p.
- Tur, S. M., and Flores, R. M., 1979, Depositional environments and stratigraphy of the Upper Cretaceous Pierre Shale, Trinidad Sandstone, and Vermejo Formation of the Raton Basin, Trinidad, Colorado: Geological Society of America, Abstracts with Programs, v. 11, no. 6, p. 304.
- Tyler, R., Ambrose, W. A., Scott, A. R., and Kaiser, W. R., 1991, Coalbed Methane Potential of the Greater Green River, Piceance, Powder River, and Raton Basins: Gas Research Institute, 244 p.
- Tyler, R., Ambrose, W. A., Scott, A. R., Kaiser, W. R., and Hamilton, D. S., 1995, Geologic and Hydrologic Assessment of Natural Gas from Coal: Greater Green River, Piceance, Powder River, and Raton Basins, Western United States: Gas Research Institute, Report 228, 219 p.
- Tyler, R., Kaiser, W. R., Scott, A. R., Hamilton, D. S. and Ambrose, W. A., 1995, Geologic and hydrologic assessment of natural gas from coal-Greater Green River, Piceance, Powder River, and Raton Basins, western United States: The University of Texas at Austin, Bureau of Economic Geology, Report of Investigations 228, 217 p.

Wanek, A. A., 1963, Geology and Fuel Resources of the southwestern part of the Raton coal field, Colfax County, New Mexico: U. S. Geological Survey, Coal Investigation Map 45, scale 1:48000.

Whitehead, N. H., 1991, Coal-bed methane in New Mexico: *New Mexico Geology*, v. 13, no. 4, p. 82-88.

Woodward, L. A., 1983, Raton Basin, New Mexico; possibilities for fracture reservoirs in Cretaceous rocks: *Oil and Gas Journal*, v. 81, no. 29, p. 175-178.

Woodward, L. A., 1984, Potential for significant oil and gas fracture reservoirs in Cretaceous rocks of Raton Basin, New Mexico: *American Association of Petroleum Geologists Bulletin*, v. 68, no. 5, p. 628-636.

Woodward, L. A., 1987, Oil and gas potential of the Raton Basin, New Mexico, *in* Lucas, S. G., and Hunt, A. P., eds., *Northeastern New Mexico: New Mexico Geological Society, Guidebook 38*, p. 331-338.

Zhu, J., 1995, Petrogenesis of Late Cenozoic Volcanic Rocks from the Raton-Clayton Volcanic Field, Northeastern New Mexico and Southeastern Colorado [Doctorate thesis]: Rice University, 229 p.